

UNITED STATES

**TITLE:** COMPACT FOLDABLE SKATEBOARD

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## **FIELD OF THE INVENTION**

**[0001]** The present invention relates to skateboards, and more particularly to skateboards that are foldable.

## **BACKGROUND OF THE INVENTION**

**[0002]** Skateboards have been known for years and typically consist of a generally flat board with upturn front and back ends, and a pair of wheels mounted adjacent each of the front and back ends. A rider places one foot on the skateboard and propels himself along by pushing with the other foot on the ground. Once a rider has reached a desired speed, both feet are placed on the skateboard in a spaced apart stance. Skateboards are typically about perhaps two feet long by eight to ten inches wide so as to be large enough to readily accommodate a rider's feet in a spaced apart stance.

**[0003]** While it is common for skateboard riders to use skateboard recreationally, it is also common for them to use skateboards for travelling to nearby locations. However, due to the size of a typical skateboard, many skateboarders do not skateboard to places such as school, the mall, and so on, since it

is necessary to either carry the skateboard around for a long period of time or to store the skateboard somewhere.

**[0004]** What is needed is a compact foldable skateboard that is easy to carry around, such as in a backpack, and is easy to store.

**[0005]** U.S. Patent 5,224,719 issued July 6, 1993 to Goodspeed, discloses a Skateboard. This skateboard has a pedal mounted on top of the front end of the deck. The front wheels are powered through a pulley mechanism by the pedal. However, the deck itself is not foldable.

**[0006]** U.S. Patent 6,158,751 issued December 12, 2002 to Wu et al, discloses a Skating Board Folding Structure. This unit is actually closer to a scooter than a skateboard, and the front wheel and the handle stem are pivotally mounted onto the board portion at a pivot at the front of the board.

**[0007]** A folding skateboard is unknown in the prior art.

**[0008]** It is an object of the present invention to provide a foldable skateboard.

**[0009]** It is another object of the present invention to provide a foldable skateboard that can readily be carried in a backpack.

**[00010]** It is a further object of the present invention to provide a folding skateboard that is compact when folded.

**[00011]** It is a further object of the present invention to provide a folding skateboard that is easy to fold between its straight in-use configuration and its folded carrying configuration.

#### **SUMMARY OF THE INVENTION**

**[00012]** In accordance with one aspect of the present invention there is disclosed a novel compact foldable skateboard comprises a central board portion having a top surface, a bottom surface, a left side edge, a right side edge, a front edge and a rear edge, and defining a longitudinal axis extending between the front edge and the rear edge. A front board portion has a top surface, a bottom surface, a left side edge, a right side edge, a front edge and a rear edge. The front board portion and the central board portion are connected one to the other in rear edge to front edge relation, by a front hinge means, for longitudinal folding movement

with respect to each other between a flat in-use configuration whereat the front board portion and the central board portion are vertically and horizontally aligned one with the other, and a folded storage configuration whereat the front board portion and the central board portion face each other. A selectively operable front locking means is mounted on one of the front board portion and the central board portion for releasably locking the front board portion and the central board portion in the flat in-use configuration. A front wheel carriage is mounted on one of the front board portion and the central board portion. A rear board portion has a top surface, a bottom surface, a left side edge, a right side edge, a front edge and a rear edge. The rear board portion and the central board portion are connected one to the other in front edge to rear edge relation, by a rear hinge means, for longitudinal folding movement with respect to each other between a flat in-use configuration whereat the rear board portion and the central board portion are vertically and horizontally aligned one with the other, and a folded storage configuration whereat the rear board portion and the central board portion face each other. A selectively operable rear locking means is mounted on one of the rear board portion and the central board portion for releasably locking the rear board portion and the central board portion in the flat in-use configuration. A rear wheel carriage is

mounted on one of the rear board portion and the central board portion.

**[00013]** In accordance with another aspect of the present invention there is disclosed a novel compact foldable skateboard comprises a front board portion having a top surface, a bottom surface, a left side edge, a right side edge, a front edge and a rear edge. A front wheel carriage is mounted on the front board portion. A rear board portion has a top surface, a bottom surface, a left side edge, a right side edge, a front edge and a rear edge. A rear wheel carriage is mounted on the rear board portion. The front board portion and the rear board portion are connected one to the other in rear edge to front edge relation, by a hinge means, for longitudinal folding movement with respect to each other between a flat in-use configuration whereat the front board portion and the rear board portion are vertically and horizontally aligned one with the other, and a folded bolt receiving portion 105 storage configuration whereat the front board portion and the rear board portion face each other. A selectively operable locking means is mounted on one of the front board portion and the rear board portion for releasably locking the front board portion and the rear board portion in the flat in-use configuration.

**[00014]** Other advantages, features and characteristics of the present invention, as well as methods of operation and functions of the related elements of the structure, and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following detailed description and the appended claims with reference to the accompanying drawings, the latter of which is briefly described herein below.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[00015]** The novel features which are believed to be characteristic of the compact foldable skateboard according to the present invention, as to its structure, organization, use and method of operation, together with further objectives and advantages thereof, will be better understood from the following drawings in which a presently preferred embodiment of the invention will now be illustrated by way of example. It is expressly understood, however, that the drawings are for the purpose of illustration and description only, and are not intended as a definition of the limits of the invention. In the accompanying drawings:

[00016] **Figure 1** is a perspective view of the first preferred embodiment skateboard according to the present invention;

[00017] **Figure 2** is a top plan view of the preferred embodiment skateboard of Figure 1;

[00018] **Figure 3** is a bottom plan view of the preferred embodiment skateboard of Figure 1;

[00019] **Figure 4** is a side elevational view of the preferred embodiment skateboard of Figure 1;

[00020] **Figure 5** is a side elevational view of the preferred embodiment skateboard of Figure 1, but with the skateboard in its folded carrying configuration;

[00021] **Figure 6** is an enlarged partially cut away bottom plan view of a portion of the preferred embodiment skateboard of Figure 1, specifically showing the locking mechanism, with the locking mechanism in an unlocked configuration;

[00022] **Figure 7** is an enlarged partially cut away bottom plan view similar to Figure 6, but with the locking mechanism in a partially locked configuration;



[00023] **Figure 8** is an enlarged partially cut away bottom plan view similar to Figure 6, but with the locking mechanism in a fully locked configuration;

[00024] **Figure 9** is a sectional side elevational view of the second preferred embodiment skateboard according to the present invention; and,

[00025] **Figure 10** is a sectional side elevational view of the third preferred embodiment skateboard according to the present invention.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

[00026] Referring to Figures 1 through 10 of the drawings, it will be noted that Figures 1 through 8 illustrate a first preferred embodiment of the compact foldable skateboard of the present invention, Figure 9 illustrates a second preferred embodiment of the compact foldable skateboard of the present invention, and Figure 10 illustrates a third preferred embodiment of the compact foldable skateboard of the present invention.

**[00027]** Reference will now be made to Figures 1 through 8, which show a first preferred embodiment of the compact foldable skateboard of the present invention, as indicated by general reference numeral 20. The compact foldable skateboard 20 comprises a central board portion 30, a front board portion 40, and a rear board portion 50, each made from layers of wood laminated together, or any other suitable material. The material must be strong enough to support the weight of a rider under dynamic load conditions, yet must be flexible enough to allow for the absorption of impact and to permit control of the skateboard through various movements, as is well known in the art.

**[00028]** The central board portion 30 has a top surface 31, a bottom surface 32, a left side edge 33, a right side edge 34, a front edge 35 and a rear edge 36, and defining a longitudinal axis "L" extending between the front edge 35 and the rear edge 36.

**[00029]** The front board portion 40 has a top surface 41, a bottom surface 42, a left side edge 43, a right side edge 44, a front edge 45 and a rear edge 46.

**[00030]** The front board portion 40 and the central board portion 30 are connected one to the other in rear edge to front edge relation, by a front hinge means 60. In the first preferred

embodiment, as illustrated, the front hinge means comprises left and right front pivot hinges 62 each in the form of a butt hinge. The front pivot hinges 62 each have first and second portions 63, 64 held together by a common pin member 66 for pivotal movement about a front pivot axis "F" defined by the common pin member 66 and oriented substantially transversely to the longitudinal axis "L". The first portion 63 of each hinge is secured to the front board portion 40 by means of suitable threaded fasteners 67. Similarly, the second portion 64 of each hinge 62 is secured to the central board portion 30 by means of suitable threaded fasteners 68.

**[00031]** In the above described manner, the front board portion 40 and the central board portion 30 are connected one to the other for longitudinal folding movement with respect to each other between a flat in-use configuration, as can be best seen in Figures 1 through 4, and a folded bolt receiving portion storage configuration, as can be best seen in Figure 5. The longitudinal folding movement of the front board portion 40 with respect to the central board portion 30 comprises relative pivotal movement of the front board portion 40 and the central board portion 30 about the front pivot axis "F".

**[00032]** In the flat in-use configuration, the front board portion 40 and the central board portion 30 are vertically and horizontally

aligned one with the other. In the folded bolt receiving portion storage configuration, the front board portion 40 and the central board portion 30 face each other, and in the first preferred embodiment, as illustrated, the top surface 41 of the front board portion 40 faces the top surface 31 of the central board portion 30.

**[00033]** A selectively operable front locking means 70 is mounted on one of the front board portion 40 and the central board portion 30 for releasably locking the front board portion 40 and the central board portion 30 in the flat in-use configuration. In the first preferred embodiment, as illustrated, the front locking means 70 comprises a dead bolt 72 having a manually manipulable handle portion 73 extending outwardly therefrom. The dead bolt 72 is slidably mounted within a main housing 74 secured to one of the front board portion 40 and the central board portion 30. In the first preferred embodiment, the main housing 74 is secured to the central board portion 30 by means of suitable threaded fasteners 74a and terminates at the front edge 35 of the central board portion 30.

**[00034]** A bolt receiving portion 75 is mounted on the other of the front board portion 40 and the central board portion 30. In the first preferred embodiment, the bolt receiving portion 75 of

the front locking means 70 is mounted on the front board portion 40 and terminates at the rear edge 46 of the front board portion 40. The bolt receiving portion 75 has a bore hole 76 that receives the dead bolt 72 therein, to define the lock position of the dead bolt 72. The main housing 74 has a plurality of recesses 77f, 77r therein for receiving the manually manipulable handle portion 73 therein, so as to lock the dead bolt 72 in either a locked position or an unlocked position. The bolt receiving portion 75 also includes a catch portion 78 within the bore hole 76. The dead bolt 72 has a co-operating notch 79 for receiving the catch portion 78 therein, to help retain the dead bolt 72 in its locked position.

**[00035]** In use, when the dead bolt 72 is in its retracted position, as is best seen in Figure 6, the locking mechanism 70 is in its unlocked configuration, thus allowing the skateboard to be folded to its folded storage configuration, as is best seen in Figure 5. To lock the skateboard 20 in its flat in-use configuration, the dead bolt 72 is rotated such that the manually manipulable handle portion 73 is removed from the rear recess 77r, and is then slid forwardly to the partially position as shown in Figure 7, corresponding to the partially locked configuration of the locking mechanism 70. The dead bolt 72 is rotated such that the manually manipulable handle portion 73 then enters the front

recess 77f, such that the locking mechanism in its fully locked configuration, an the skateboard is ready for use.

**[00036]** A front wheel carriage 80 having wheels 82 is mounted on one of the front board portion 40 and the central board portion 30, and in the first preferred embodiment, is mounted on the front board portion 40 by means of suitable threaded fasteners 84.

**[00037]** The rear board portion 50 has a top surface 51, a bottom surface 52, a left side edge 53, a right side edge 54, a front edge 55 and a rear edge 56.

**[00038]** The rear board portion 50 and the central board portion 30 are connected one to the other in front edge to rear edge relation, by a rear hinge means 90. In the first preferred embodiment, as illustrated, the rear hinge means 90 comprises left and right rear pivot hinges 92 each in the form of a butt hinge. The rear pivot hinges 92 each have first and second portions 93,94 held together by a common pin member 96 for pivotal movement about a rear pivot axis "R" defined by the common pin member 96 and oriented substantially transversely to the longitudinal axis "L". The first portion 93 of each hinge 92 is secured to the rear board portion 50 by means of suitable threaded fasteners 97. Similarly,

the second portion 94 of each hinge 93,94 is secured to the central board portion 30 by means of suitable threaded fasteners 98.

**[00039]** In the above described manner, the rear board portion 50 and the central board portion 30 are connected one to the other for longitudinal folding movement with respect to each other between a flat in-use configuration, as can be best seen in Figures 1 through 4, and a folded storage configuration, as can be best seen in Figure 5. The longitudinal folding movement of the rear board portion 50 with respect to the central board portion 30 comprises relative pivotal movement of the rear board portion 50 and the central board portion 30 about the rear pivot axis "R".

**[00040]** In the flat in-use configuration, the rear board portion 50 and the central board portion 30 are vertically and horizontally aligned one with the other. In the folded storage configuration, the rear board portion 50 and the central board portion 30 face each other, and in the first preferred embodiment, as illustrated, the top surface 51 of the rear board portion 50 faces the top surface 31 of the central board portion 30.

**[00041]** A selectively operable rear locking means 100 is mounted on one of the rear board portion 50 and the central board portion 30 for releasably locking the rear board portion 50 and the central

board portion 30 in the flat in-use configuration. In the first preferred embodiment, as illustrated, the rear locking means 100 comprises a dead bolt 102 having a manually manipulable handle portion 103 extending outwardly therefrom. The dead bolt 102 is slidably mounted within a main housing 104 secured to one of the rear board portion 50 and the central board portion 30. In the first preferred embodiment, the main housing 104 is secured to the central board portion 30 by means of suitable threaded fasteners 104a and terminates at the rear edge 36 of the central board portion 30.

**[00042]** A bolt receiving portion 105 is mounted on the other of the rear board portion 50 and the central board portion 30. In the first preferred embodiment, the bolt receiving portion 105 of the rear locking means 100 is mounted on the rear board portion 50 and terminates at the front edge 55 of the rear board portion 50. The bolt receiving portion 105 has a bore hole 106 that receives the dead bolt 102 therein, to define the lock position of the dead bolt 102. The main housing 104 has a plurality of recesses 107 therein for receiving the manually manipulable handle portion 103 therein, so as to lock the dead bolt 102 in either a locked position or an unlocked position. The bolt receiving portion 105 also includes a catch portion within the bore hole. The dead bolt 102 has a co-



operating notch for receiving the catch portion therein, to help retain the dead bolt 102 in its locked position.

**[00043]** A rear wheel carriage 120 having rear wheels 122 is mounted on one of the rear board portion 50 and the central board portion 30, and in the first preferred embodiment, is mounted on the rear board portion 50 by means of suitable threaded fasteners 124.

**[00044]** There is also a braking means 130 mounted on the compact foldable skateboard 20. The braking means 130 has a pivot axle 132 pivotally mounted on the rear board portion 50 by means of a pair of mounting brackets 134 secured to the rear board portion 50 by suitable threaded fasteners 136. An actuation arm means 140 extend outwardly from the pivot axle so as to be readily accessible to a rider. In the first preferred embodiment, as illustrated, the actuation arm means 140 comprises a pair of proximal arm members 142 secured to the pivot axle 132 and terminating in a cross member 144 disposed immediately below the rear board portion 50. A pair of arm members 146 extend upwardly from the cross member 144 through co-operating apertures 148 in the rear board portion 50, to terminate in a foot operable peddle portion 150 disposed a short distance above the rear board portion 50. There is at least one brake pad 152 operatively mounted on the pivot axle for frictional

engagement with the rear wheels 122. In the first preferred embodiment, as illustrated, there are left and right brake pads 152 mounted on the pivot axle 132 for frictional engagement with the left and right rear wheels 122, respectively, when a rider presses downwardly on the foot operable peddle 152.

**[00045]** Reference will now be made to Figure 9, which shows a second preferred embodiment of the compact foldable skateboard of the present invention, as indicated by general reference numeral 220. The second preferred embodiment compact foldable skateboard 220 is similar to the first preferred embodiment compact foldable skateboard 20, except that the second preferred embodiment compact foldable skateboard 220 comprises a front board portion 240, and a rear board portion 250, each made from layers of wood laminated together, or any other suitable material, as discussed earlier with reference to the first preferred embodiment.

**[00046]** The front board portion 240 has a top surface 241, a bottom surface 242, a left side edge 243, a right side edge 244, a front edge 245 and a rear edge 246. A front wheel carriage 280 is mounted on the front board portion 240.

**[00047]** The rear board portion 250 has a top surface 251, a bottom surface 252, a left side edge 253, a right side edge 254, a

front edge 255 and a rear edge 256. A rear wheel carriage 290 is mounted on the rear board portion.

**[00048]** The front board portion 240 and the rear board portion 250 are connected one to the other in rear edge to front edge relation, by a hinge means 260. In the second preferred embodiment, as illustrated, the hinge means 260 comprises a pivot hinge 262 in the form of a butt hinge. The pivot hinge 262 has first and second portions 263, 264 held together by a common pin member 266 for pivotal movement about a central pivot axis "C" defined by the common pin member 266 and oriented substantially transversely to the longitudinal axis "L". The first portion 263 of the hinge 262 is secured to the front board portion 240 by means of suitable threaded fasteners 267. Similarly, the second portion 264 of the hinge 262 is secured to the rear board portion 250 by means of suitable threaded fasteners 268.

**[00049]** In the above described manner, the front board portion 240 and the rear board portion 250 are connected one to the other in rear edge to front edge relation, as aforesaid, for longitudinal folding movement with respect to each other between a flat in-use configuration, and a folded storage configuration. The longitudinal folding movement of the front board portion 240 and the rear board portion 250 with respect to each other comprises

relative pivotal movement of the front board 240 portion and the rear board portion 250 about the central pivot axis "C".

**[00050]** In the flat in-use configuration, the front board portion 240 and the rear board portion 250 are vertically and horizontally aligned one with the other. In the folded storage configuration, the front board portion 240 and the rear board portion 250 face each other, with top surface 251 of the front board portion 250 facing the top surface 251 of the rear board portion 250.

**[00051]** A selectively operable locking means 270 is mounted on one of the front board portion 240 and the rear board portion 250 for releasably locking the front board portion 240 and the rear board portion 250 in the flat in-use configuration. In the second preferred embodiment, as illustrated, the locking means 270 comprises a dead bolt 272 having a manually manipulable handle portion 273 extending outwardly therefrom. The dead bolt 272 is slidably mounted within a main housing 274 secured to one of the front board portion 240 and the rear board portion 250. In the second preferred embodiment, the main housing 274 is secured to the front board portion 240 by means of suitable threaded fasteners 274a and terminates at the rear edge 246 of the front board portion 240. A bolt receiving portion 275 is mounted on the other of the front board portion 240 and the rear board portion 250. In the

second preferred embodiment, the bolt receiving portion 275 of the locking means 270 is mounted on the rear board portion 250 and terminates at the front edge 255 of the rear board portion 250. The selectively operable locking means 270 is essentially analogous to the selectively operable locking means 70 in the first preferred embodiment compact foldable skateboard 20.

**[00052]** Reference will now be made to Figure 10, which shows a third preferred embodiment of the compact foldable skateboard of the present invention, as indicated by general reference numeral 320. The third preferred embodiment compact foldable skateboard 320 is similar to the first preferred embodiment compact foldable skateboard 20, except that in the third preferred embodiment compact foldable skateboard 320, the main housing 374 of the front locking means 370 is mounted on the central board portion 330 and terminates beyond the front edge 335 of the central board portion 330, and the main housing 384 of the rear locking means 380 is mounted on the central board portion 330 and terminates beyond the rear edge 336 of the central board portion 330. In this manner, the main housing 374 of the front locking means 370 is directly below the joint between the front board portion 340 and the central board portion 330, in weight supporting relation. Similarly, the the main housing 384 of the rear locking means 380 is directly

below the joint between the rear board portion 350 and the central board portion 330, in weight supporting relation.

**[00053]** As can be understood from the above description and from the accompanying drawings, the present invention provides a compact foldable skateboard, provide a foldable skateboard that can readily be carried in a backpack, that is compact when folded, and that is easy to fold between its straight in-use configuration and its folded carrying configuration, all of which features are unknown in the prior art.

**[00054]** Other variations of the above principles will be apparent to those who are knowledgeable in the field of the invention, and such variations are considered to be within the scope of the present invention. Further, other modifications and alterations may be used in the design and manufacture of the compact foldable skateboard of the present invention without departing from the spirit and scope of the accompanying claims.